

THE EUFAR-FP6 JRA: Airborne Aerosol Reference Pod

The AARP project is conducted by 7 research institutions representing 5 countries:

Leader : University of Manchester (UK) : Hugh Coe

Météo-France, CNRM (FR) : Thierry Bourriane, Laurent Gomes

Enviscope GmbH (DE) : Rolf Maser

Stockholm University (SE) : Radovan Krejci

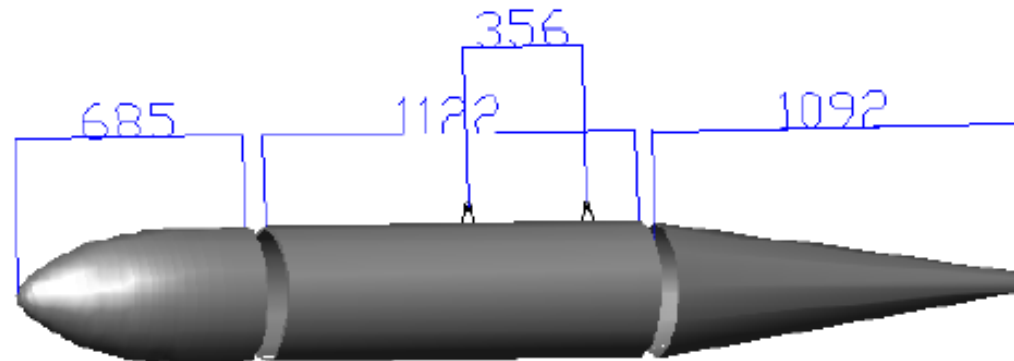
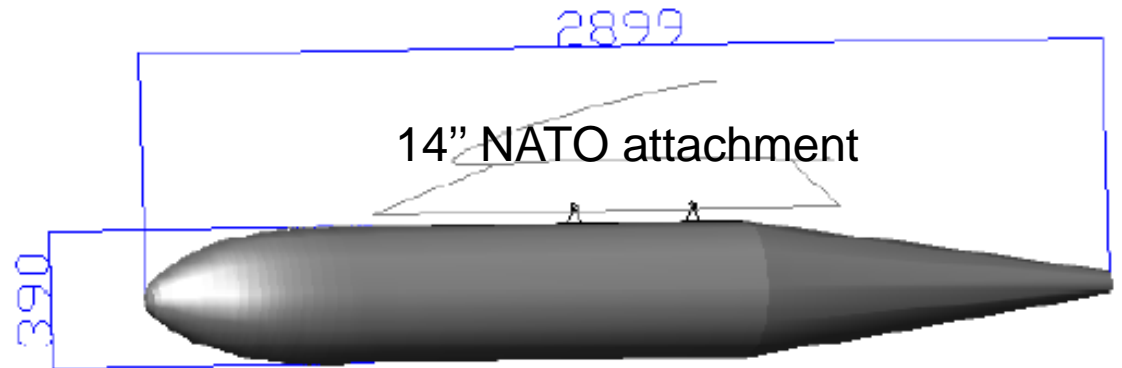
Max-Planck-Institute for Chemistry (DE) : Joachim Curtius

National University of Ireland, Galway (IE) : Regis Dupuy

Leibniz-Institut for Tropospheric Research (DE): Markus Hermann

To design and construct an Aerosol Reference Pod that can be flown on several aircraft and will serve as a true basis for inter-calibration of airborne aerosol instrumentation, as well as being a stand-alone aerosol payload.

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Pod candidate eK01

Mounting system: 14 inch lug

Empty weight 40 kg,

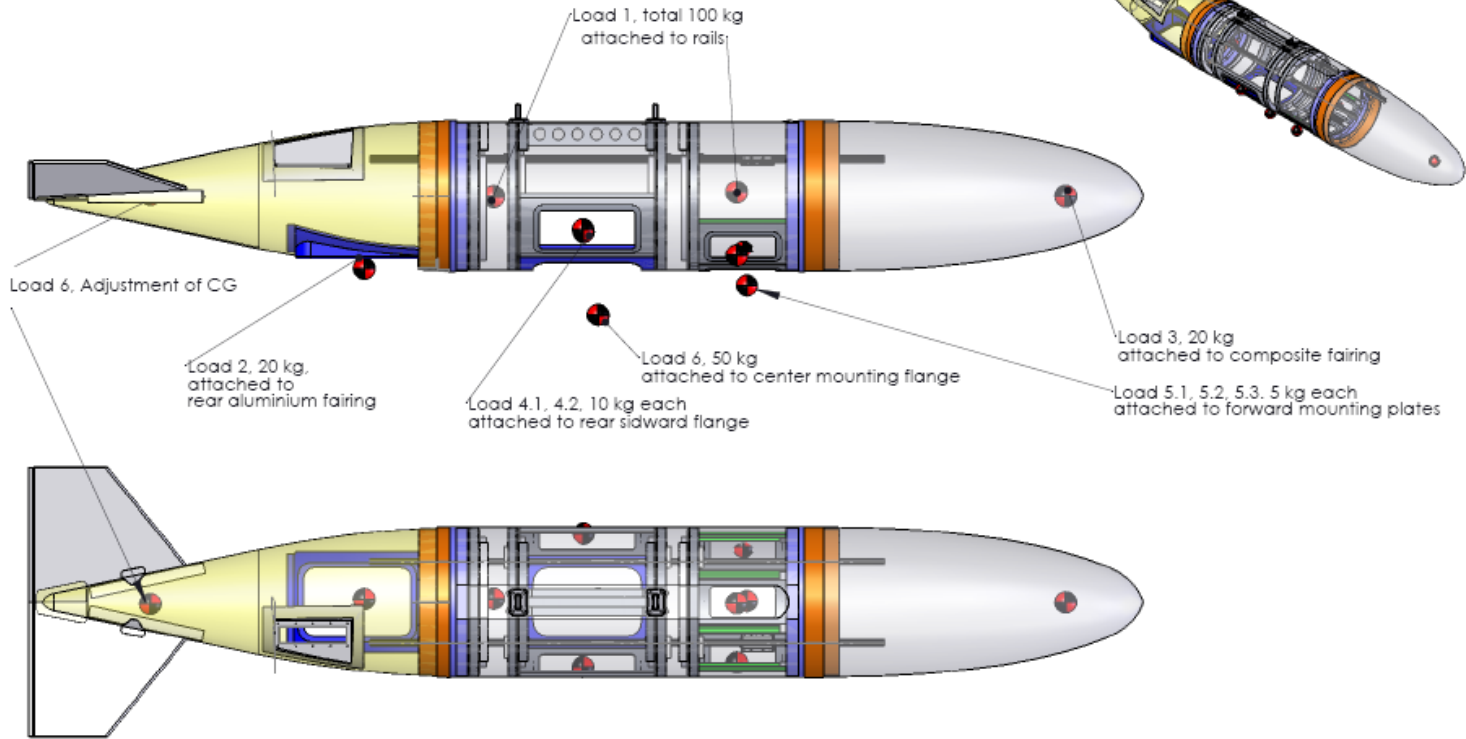
Total weight: < 100 kg




PMS housing for comparison

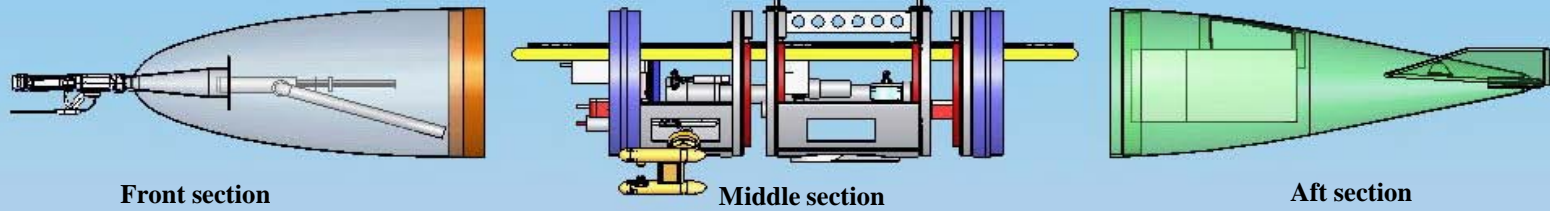
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Static Load Cases:
LC1: 10g DWD with stations 1, 2, 3
LC2: 10g DWD with stations 4, 5, 6
LC3: x g UWD with stations
LC4: 3g, FWD with stations 1, 2, 3
LC5: 3g, FWD with stations 4, 5, 6



 enviscope GmbH Arnoldshainer Str. 5 D-65450 Frankfurt www.enviscope.de					UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TO DIMENSIONS: LINEAR: ANGULAR:	SCALE: 1:20 DO NOT SCALE DRAWING A3
DRAWN: CHECK: APPROV: MFC: QA:	NAME: SIGNATURE: DATE: REVISION:	NOTE: All rights reserved! No information contained on this drawing is to be disclosed to any third party without the prior written consent of Enviscope GmbH.	PROJECT: Benennung:	SHEET: - Blatt 1		
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Inlet components:

Isokinetic Inlet

- High speed inlet incl. Pitot
- Low speed inlet incl. Pitot
- Pressure sensors
- Heaters control unit

Diffusor and Flow Splitter

- Diffusor
- Restrictor Disc
- Provision to achieve isokinetic conditions at entrance of sampling tubes
- Sampling lines
- Excess air tubes

Peripherie:

- Excess Air:
 - Volume Flow Sensing Element
 - Control Valve (Isokineticity Inlet)
- Excess Air Bracket
- Venturi ??
- Several temperature sensors

Externally mounted instruments:

- CDP** sensor unit
(electronic box inside pod)
- ASPEN** Probe
(electronics integrated in pylon)

Internally mounted instruments:

- **MARIE**
2 x CPC
separate electronic unit
- **SMPS**
various components
- **OPC**
(1 unit)
- **Data Acquisition Unit**
(PC104)
- **Static Temperature Sensor**

Peripherie:

- Power distribution
- Vacuum Pump
- Front Connector Bracket to a/c

Basic Infrastructure:

- Power Converters
DC/DC
DC/AC
AC/DC
EMV Filter
- Rear Connector Bracket to aircraft

Pod 1: Microphysics

Location of instruments

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Pod 2: Optical Properties

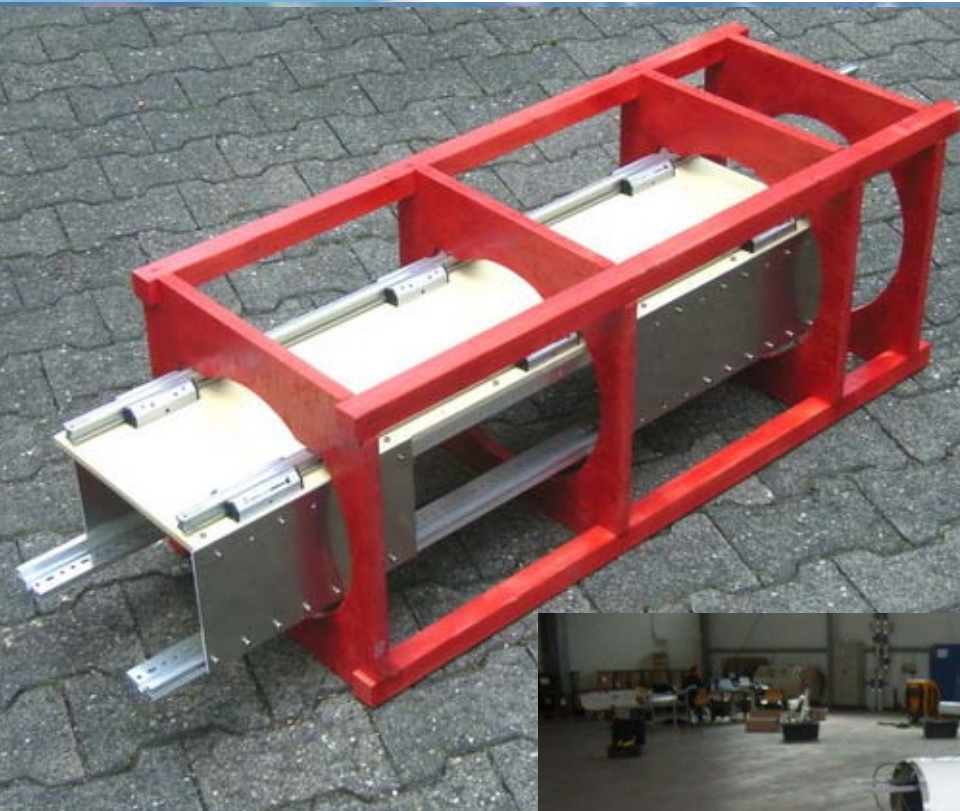
MAAP

NEPHELOMETER

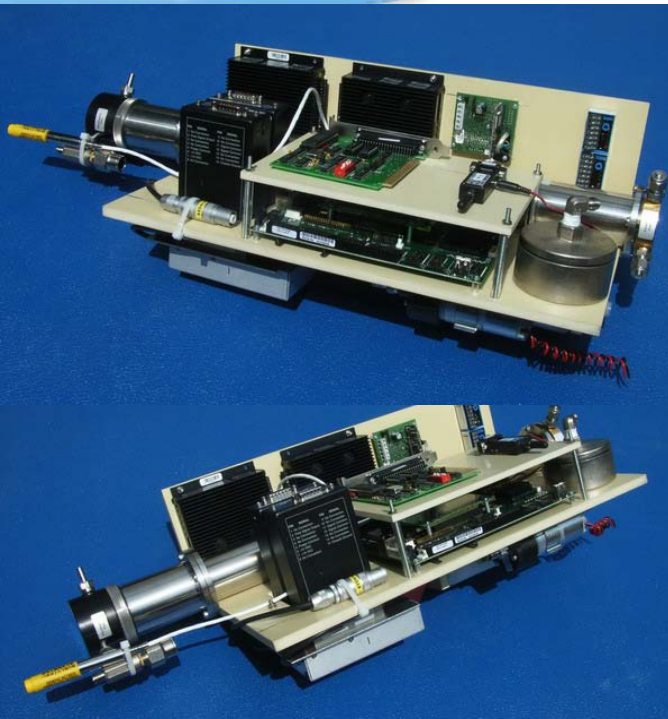
OPC



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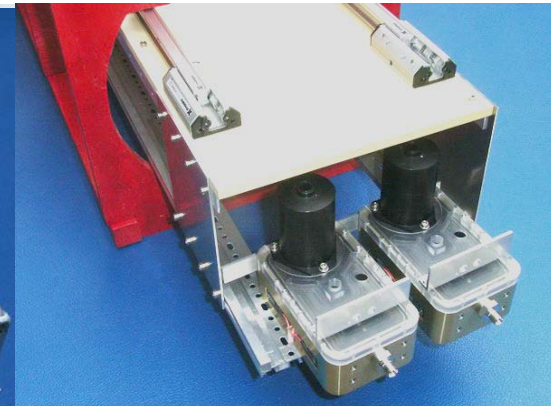
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SMPS



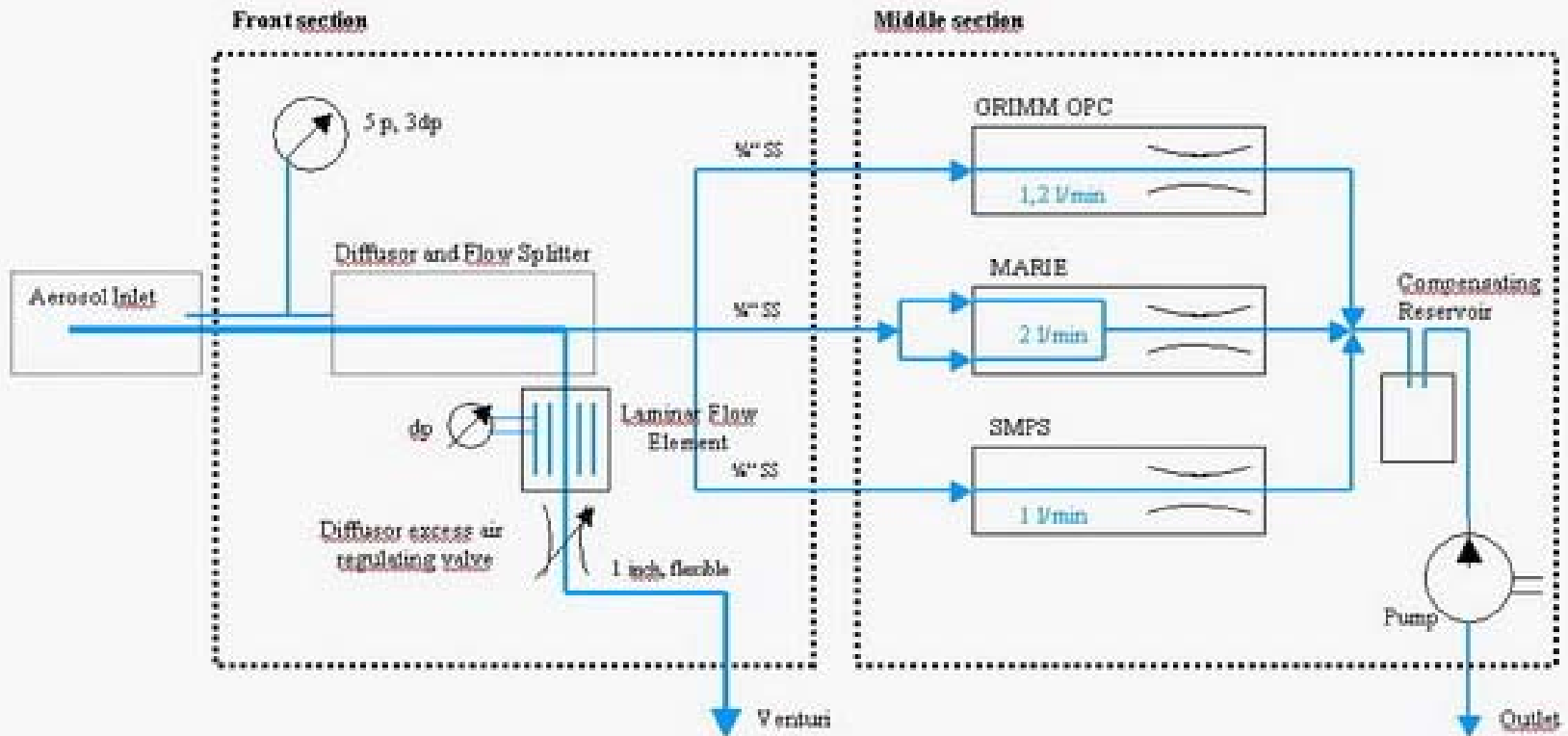
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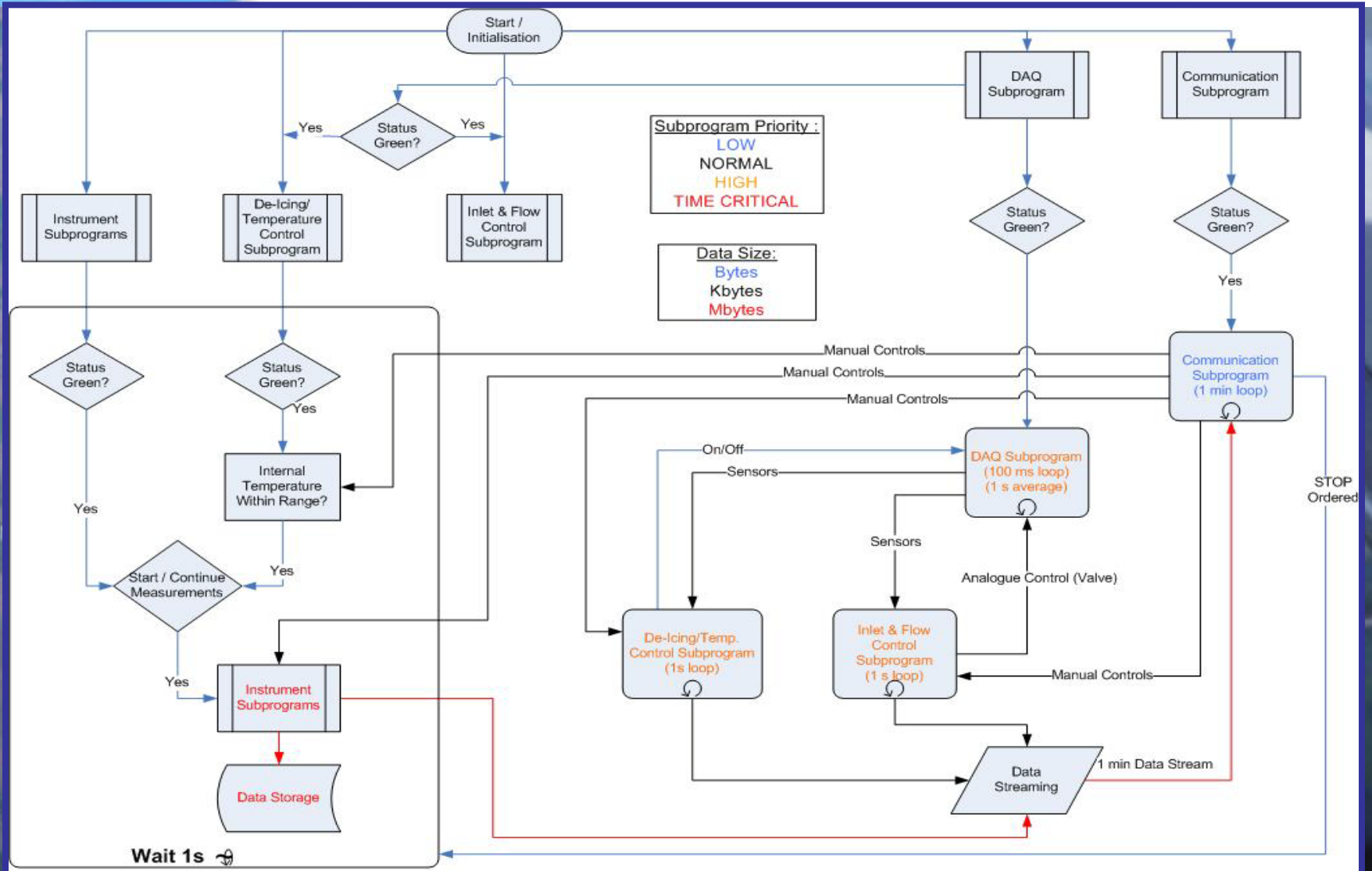
MARIE

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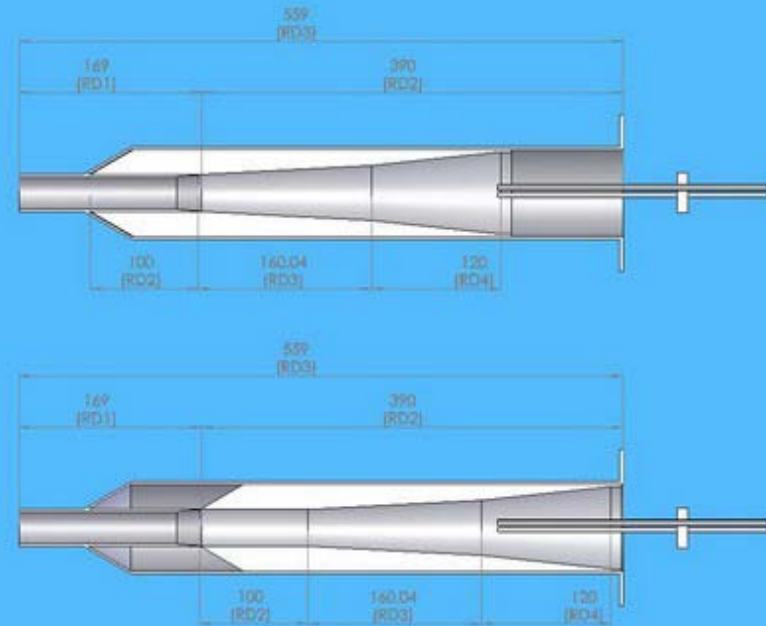
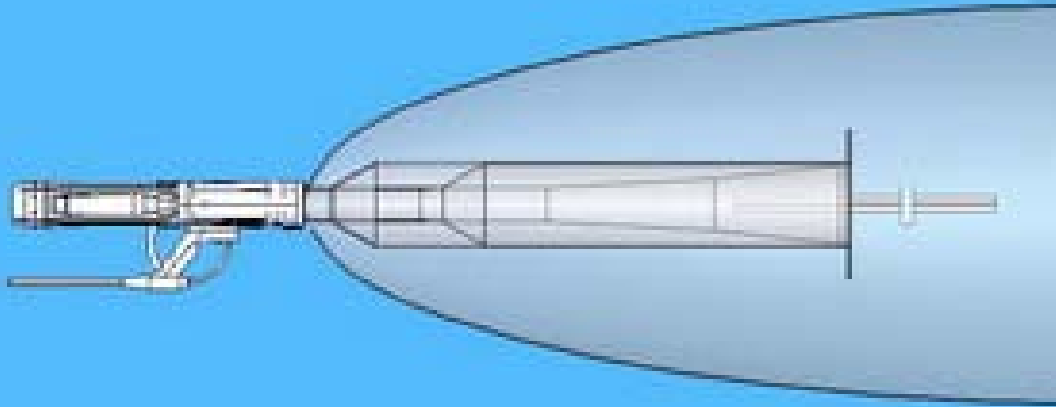
Block Diagram Gas Tubing



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Removable lips on the diffuser and on the shroud to adapt the inlet to slow (100 m/s) and high (200 m/s) flying aircraft

Adjustable diffuser to adapt to the airspeed and flow rates of the instruments

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The two aerosol pods are now maintained and operated by the University of Manchester

